SHEET INDEX



SYMBOL

BUFFER A
ELEMENT IDENT
A

| TERM. MDO | FUNCT | TERM. | LOC | TERM. MOD | FUNCT | TERM. | LOC |
|---|---|---|---|---|---|---|---|
| ACKIO | I | 308 | 2A7 | INF12D | Ø | 212 | 3H7 |
| BLK.CBR1 | I | 005 | 3A8 | INF13G | Ø | 306 | 3H9 |
| BUFLD | I | 207 | 3A9 | INF14D | Ø | 206 | 3H9 |
| SRD | I | 004 | 2A8 | INF15Q | Ø | 30D | 3H2 |
| BUSYD | I | 302 | 2A3 | INITPG | Ø | 017 | 2H8 |
| CLK | I | 305 | 2A7 | LCITP1 | Ø | 203 | 3H5 |
| GPR9 | I | C19 | 2A6 | LØADD | Ø | 215 | 3H7 |
| IACTO | I | 208 | 3A9 | MM-STA1 | Ø | 2D4 | 3HD |
| INFOD0 | I | 013 | 2A1 | RDYO | Ø | 205 | 2HO |
| INFD10 | I | 113 | 2A1 | RT.ADRA0 | Ø | 003 | 2H5 |
| INFD20 | I | 014 | 2A1 | RT.ADRB0 | Ø | 100 | 2H6 |
| INFD30 | I | 114 | 2A1 | RT.ADRC0 | Ø | 002 | 2H6 |
| INFD40 | I | 012 | 2A1 | ST.CLKO | Ø | 108 | 2H1 |
| INFD5D | I | 112 | 2A0 | S'UFFO | Ø | 212 | 3H6 |
| INFD90 | I | 217 | 3A7 | SWB1 | Ø | 0D9 | 3H4 |
| INF10D | I | 216 | 3A7 | SYNCO | Ø | 103 | 2H2 |
| INF11Q | I | 011 | 3A6 | TG.SEQ1 | Ø | D10 | 3H5 |
| INF12Q | I | 313 | 3A6 | UNLBADO | Ø | 209 | 3H6 |
| INF13Q | I | 007 | 3A0 | WAITO | Ø | 015 | 2H4 |
| INF14D | I | 106 | 3A0 | +5 | P | 000,119 | 2H2 |
| INF15Q | I | 006 | 3A0 | GRO | G | 200,319 | 2H4 |
| INITO | I | 107 | 2A1 | | | | |
| LOPCKDD | I | 318 | 2A6 | | | | |
| PE1 | I | 001 | 2A0 | | | | |
| RCO | I | 118 | 2A2 | | | | |
| ROO | I | 115 | 2A3 | | | | |
| SOO | I | 018 | 2A2 | | | | |
| SL.O | I | 116 | 2A3 | | | | |
| STFILLO | I | 104 | 3A2 | | | | |
| C.OR1 | Ø | 105 | 3H9 | | | | |
| CLCO1 | Ø | 309 | 3H1 | | | | |
| CLC11 | Ø | 008 | 1H1 | | | | |
| CSTC1 | Ø | 111 | 3H4 | | | | |
| DV.FILL1 | Ø | 110 | 3HO | | | | |
| ENDTO | Ø | 109 | 3H5 | | | | |
| ERO | Ø | 204 | 2HO | | | | |
| GPO | Ø | 117 | 2H6 | | | | |
| IOENO | Ø | 016 | 2H8 | | | | |
| INFO60 | Ø | 101 | 3H3 | | | | |
| INFO70 | Ø | 102 | 3H3 | | | | |
| INFO80 | Ø | 201 | 3H2 | | | | |
| INFO90 | Ø | 315 | 3H8 | | | | |
| INF10D | Ø | 314 | 3H8 | | | | |
| INF11Q | Ø | 214 | 3H8 | | | | |

RECORD OF CHANGES

| DWG ISS | PREV FURN | STO | MFR DISC | SEE NOTE |
|---|---|---|---|---|
| | | | | |

| SYSTEMS USED ON | DESIGN CONTROL |
|---|---|
| COMMON SYSTEMS | IH |

CURRENT DRAIN: 340mA

NOTES:

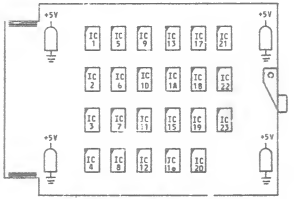
1. ⏚ GROUND RETURN
2. UNLESS OTHERWISE SPECIFIED:
   RESISTANCE VALUES ARE IN OHMS
   CAPACITANCE VALUES ARE IN MICROFARADS
   VALUES PRECEDED BY THE SYMBOL +(PLUS) OR -(MINUS) ARE IN VOLTS
3. BATTERY AND GROUND TERMINALS FOR INTEGRATED CIRCUITS

| IC CODE | BAT. TERM. | GRD TERM. |
|---|---|---|
| 41AE | 16 | 7,8 |
| 41BP | 16 | 8 |
| 41BR | 16 | 7,8 |
| 41CA | 16 | 8 |
| 41CD | 16 | 8 |
| 41CF | 16 | 7,8 |
| 41CK | 16 | 8 |
| 41EG | 16 | 7,8 |
| 41EH | 16 | 7,8 |
| 41U | 16 | 8 |
| 41W | 16 | 8 |

4. BATTERY AND GROUND TERMINALS FOR THIS CIRCUIT PACK ARE AS FOLLOWS:

| FUNCTION | TERMINAL |
|---|---|
| +5 | 000,119 |
| GRO | 200,319 |

5. HORIZONTAL MOUNTING CENTERS AT 0.50 INCH.
6. INTEGRATED CIRCUIT LOCATION GUIDE: (COMPONENT SIDE SHOWN)




UNMARKED COMPONENTS ARE FILTER CAPACITORS

SUPPORTING INFORMATION

| CATEGORY | NO. |
|---|---|
| CIRCUIT PACK CODE | JK10 |
| CONNECTOR ON FRAME | 947C OR 947A |
| SERIES FOR LATEST CLASS A CHANGE. (ANY HIGHER SERIES IS ACCEPTABLE. | |
| ACCEPTABLE SERIES | 1 |

SHEET INDEX NOTES

1. WHEN CHANGES ARE MADE IN THIS DRAWING ONLY THOSE SHEETS AFFECTED WILL BE REISSUED.
2. THIS SHEET INDEX WILL BE REISSUED AND BROUGHT UP TO DATE EACH TIME ANY SHEET OF THE DRAWING IS REISSUED, OR A NEW SHEET IS ADDED.
3. THE ISSUE NUMBER ASSIGNED TO A CHANGED OR NEW SHEET WILL BE THE SAME ISSUE NUMBER AS THAT OF THE FIRST SHEET
4. SHEETS THAT ARE NOT CHANGED WILL RETAIN THEIR EXISTING ISSUE NUMBER.
5. THE LAST ISSUE NUMBER OF THE FIRST SHEET INDEX IS RECOGNIZED AS THE LATEST ISSUE NUMBER OF THE DRAWING AS A WHOLE.

| DWG ISSUE | ECR OR CSR ISSUED | DATE ISSUE | APPD |
|---|---|---|---|
| 1 | — | 10-6-74 | LRE RBP<br>MTS<br>URE RPG |
| 2D1 | — | 12-9-75 | BWS CE<br>LEG<br>LRE RPG |



ISSUE 2D1

1N98

JK10 CIRCUIT PACK

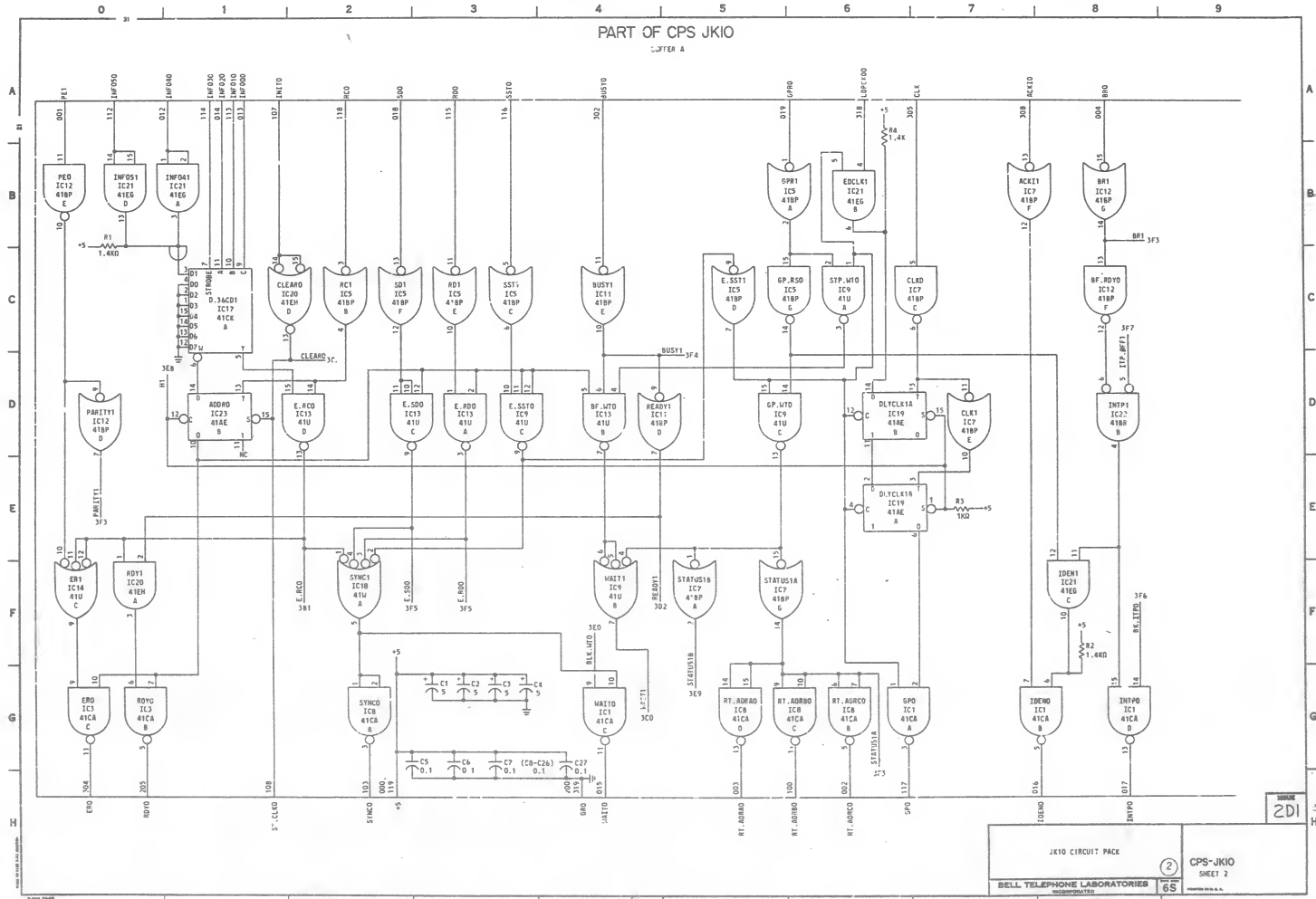
BUFFER A CIRCUIT

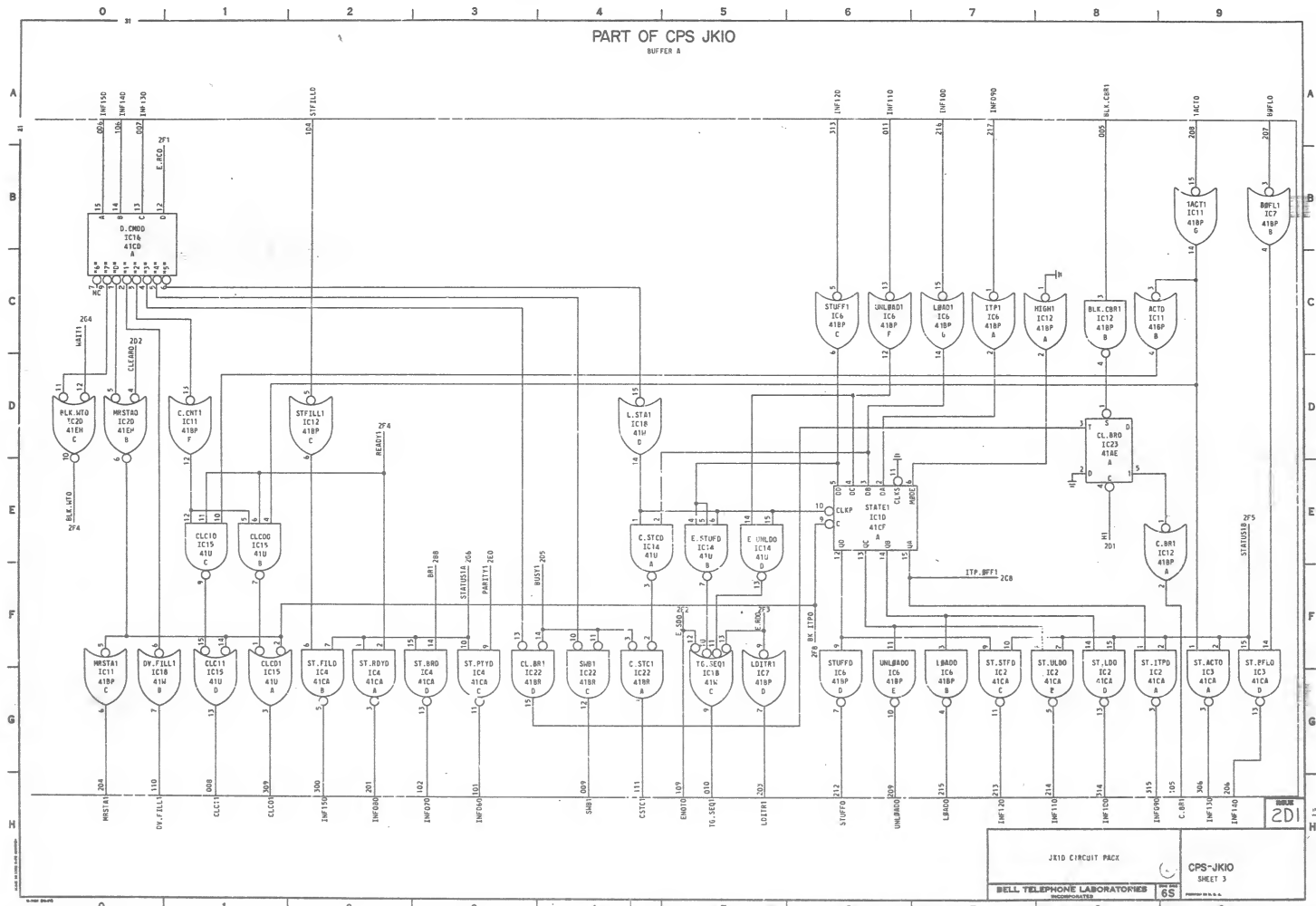
AT&TCO STANDARD

CPS-JK10
4 SHEETS

BELL TELEPHONE LABORATORIES INCORPORATED

FORM 6S


PART OF CPS JK10
BUFFER A
JK10 CIRCUIT PACK
CPS-JK10
SHEET 2
BELL TELEPHONE LABORATORIES
INCORPORATED
2D1


PART OF CPS JKIO
BUFFER A
D.CMOD IC16 41CD A
BLK.WTO IC2D 41EH C
MRSTAQ IC2D 41EH B
C.CNT1 IC11 41BP F
STFILL1 IC12 41BP C
L.STA1 IC18 41W D
CLC10 IC15 41U C
CLCOD IC15 41U B
C.STCD IC14 41U A
E.STUFD IC14 41U B
E UNLDO IC14 41U D
STATE1 IC1D 41CF A
CL.BRO IC23 41AE A
C.BR1 IC12 41BP A
MRSTA1 IC11 41BP C
DV.FILL1 IC18 41W B
CLC11 IC15 41U D
CLCD1 IC15 41U A
ST.FILD IC4 41CA B
ST.RDYD IC4 41CA A
ST.BRD IC4 41CA D
ST.PTYD IC4 41CA C
CL.BR1 IC22 41BR D
SWB1 IC22 41BR C
C.STC1 IC22 41BR A
TG.SEQ1 IC1B 41W C
LDITR1 IC7 41BP D
STUFF1 IC6 41BP C
UNLBAD1 IC6 41BP F
LBAD1 IC6 41BP G
ITP1 IC6 41BP A
HIGH1 IC12 41BP A
BLK.CBR1 IC12 41BP B
ACTD IC11 41BP B
1ACT1 IC11 41BP G
BBFL1 IC7 41BP B
STUFFD IC6 41BP D
UNLBADD IC6 41BP C
LBADD IC6 41BP B
ST.STFD IC2 41CA C
ST.ULDO IC2 41CA E
ST.LDO IC2 41CA D
ST.ITPD IC2 41CA A
ST.ACTO IC3 41CA A
ST.PFLO IC3 41CA D
JK1D CIRCUIT PACK
BELL TELEPHONE LABORATORIES INCORPORATED
CPS-JKIO SHEET 3
65
2D1
CPS-JKIO

# PART OF CPS JK10

BUFFER A

COMPONENT LIST

INTEGRATED CIRCUIT

| LOC CODE ELEM | IC1 41CA | | IC2 41CA | | IC3 41CA | | IC4 41CA | | IC5 41BP | | IC6 41BP | | IC7 41BP | | IC8 41CA | | IC9 41U | | IC10 41CF | | IC11 41BP | | IC12 41BP | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IO | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC |
| A | GPO | 2G6 | ST.ITPD | 3G8 | ST.ACTD | 3G9 | ST.RDYD | 3G2 | GPR1 | 2B6 | ITP1 | 3C7 | STATUS1B | 2F5 | SYNCO | 2G2 | STP.WTO | 2C6 | STATE1 | 3E6 | HIGH1 | 3C8 | C.BR1 | 3E9 |
| B | IDENO | 2G8 | ST.ULDD | 3G8 | RDYD | 2G0 | ST.FILD | 3G2 | RC1 | 2C2 | LBAD0 | 3G7 | B&FL1 | 3B9 | RT.ADRCD | 2G6 | WAIT1 | 2F4 | | | ACTD | 3C9 | BLK.CBR1 | 3C8 |
| C | WAITD | 2G4 | ST.STFD | 3G7 | ERD | 2G0 | ST.PTYO | 3G3 | SST1 | 2C3 | STUFF1 | 3C6 | CLKD | 2C7 | RT.ADRBD | 2G6 | E.SSTO | 2D3 | | | MRSTA1 | 3G0 | STF7.LL1 | 3C2 |
| D | INTPD | 2G8 | ST.LDD | 3G8 | ST.BFLD | 3G9 | ST.BRO | 3E3 | E.SST1 | 2C5 | STUFFO | 3G6 | LDITR1 | 3G5 | RT.ADRAD | 2G5 | GP.WTD | 2D5 | | | READY1 | 2D4 | PARITY | 2D0 |
| E | | | | | | | | | RD1 | 2C3 | UNLBADO | 3G6 | CLK1 | 2D7 | | | | | | | BUSY1 | 2C4 | *2D | 2B0 |
| F | | | | | | | | | SD1 | 2C2 | UNLBAD1 | 3C6 | ACKI1 | 2B7 | | | | | | | C.CNT1 | 3D1 | BF.RDYD | 2C8 |
| G | | | | | | | | | GP.RSD | 2C6 | LBAD1 | 3C7 | STATUS1A | 2F5 | | | | | | | 1ACT1 | 3B9 | * BR1 | 2B8 |

| LOC CODE ELEM | IC13 41U | | IC14 41U | | IC15 41U | | IC16 41CD | | IC17 41CK | | IC18 41W | | IC19 41AE | | IC20 41EH | | IC21 41EG | | IC22 41BR | | IC23 412E | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| IO | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DCS IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC | DES IG | SH LOC |
| A | E.RDO | 2G3 | C.STCD | 3E4 | CLCO1 | 3G1 | D.CMDO | 3B0 | D.36CD1 | 2C1 | SYNC1 | 2F2 | DLYCLK1B | 2E6 | RC*1 | 2F0 | INFD4* | 2D1 | C.STC1 | 3G4 | CL.BRO | 3G8 |
| B | BF.WTD | 2D4 | E.STUFO | 3E5 | CLCOO | 3E1 | | | | | DV.FILL1 | 3G0 | | | MRSTA0 | 3D0 | EDCLK1 | 2B6 | INTP1 | 2D8 | ADDRO | 2D1 |
| C | E.SDO | 2D5 | ER1 | 2F0 | CLC1O | 3C1 | | | | | TG.SEQ1 | 3G5 | DLYCLK1A | 2D6 | BLK WTD | 3D0 | IDEN1 | 2F8 | SWB1 | 3G4 | | |
| D | E.RCD | 2D2 | E.UNLDD | 3E5 | CLC11 | 3G1 | | | | | L.STA1 | 3D4 | | | CLEARD | 2C2 | INFD51 | 2B0 | CL.BR1 | 3G3 | | |
| E | | | | | | | | | | | | | | | | | | | | | | |
| F | | | | | | | | | | | | | | | | | | | | | | |
| G | | | | | | | | | | | | | | | | | | | | | | |

CAPACITOR

| | DESIG | CODE |
|---|---|---|
| [4] | C1-C4 | 6018.5 |
| [23] | C5-C27 | KS-19774 L5,D.1 |

RESISTOR

| | DESIG | CODE |
|---|---|---|
| [2] | R1,R2 | KS-20616 L1A,1.4KΩ |
| | R3 | KS-20616 L1A, 1KΩ |
| | R4 | KS-20616 L1A,1.4KΩ |

CIRCUIT DESCRIPTION

CIRCUIT PACK JK10 HANDLES THE BUFFER ADDRESS AND COMMAND DECODING AND HANDSHAKING ON THE COMMON PARALLEL BUS. BUFFER ADDRESS GOTO11 APPEARING ON BUS LEADS INFD00-INFD50 IS DECODED BY D.36CD1 CAUSING THE ADDRESS F/F ADDRO TO BE CLEARED ON THE LEADING EDGE OF RCD, SELECTING THE BUFFER AND ENABLING COMMAND INPUTS SDO,RDO AND SSTO AS WELL AS THE ERD OUTPUT. THE BUFFER IS DESELECTED (ADDRO IS SET) EITHER BY INITD OR BY AN RC ACCOMPANYING A NONBUFFER DEVICE CODE. AN ADDRESSED CIRCUIT RETURNS SYNCO IN RESPONSE TO RCD, SDO, RDO, OR SSTO AND NEGATES SYNCO FOLLOWING THE REMOVAL OF THE COMMAND SIGNAL. ERD IS ASSERTED BY RCO AND IS HELD TRUE BY A PARITY ERROR INDICATION (PET TRUE).

THE RECEPTION OF AN SSTO I ITES STATUS INFORMATION ONTO THE BUS AND ASSERTS WAITO AND PARITY GENERATE REQUEST GPO IN ADDITION TO SYNCO. THE NEXT FALLING EDGE OF CLK SETS DLYCLK1A AND THE FOLLOWING RISING EDGE SETS DLYCLK1B, CUTTING OFF GPO. THE PARITY GENERATION CIRCUITS IN THE BUS TERMINATOR RESPOND BY ASSERTING GPRO WHICH REMOVES STATUS INFORMATION FROM THE BUS AND INHIBITS THE BUFFER WAITD. THE DELAY CHAIN IS CLEARED WHEN SSTO IS REMOVED.

RDO CLOCKS INFORMATION ON THE PARALLEL BUS INTO THE INTERMEDIATE TRANSFER REGISTER, ITR, ON JK12 VIA LEAD LDITR1. SDO GATES THE ITR ONTO THE BUS VIA LEAD ENDTO.

WAITO IS ASSERTED WHEN BUSYO IS ACTIVE AND THE BUFFER IS SELECTED BUT MAY BE BLOCKED AT GATE BLK.WTD BY COMMAND DECODER (D.CMDO) OUTPUT 7. INTPO IS ASSERTED WHEN BRO IS ACTIVE AND THE STATE REGISTER ITP.WFF BIT IS NOT SET. AN INTERRUPT CONDITION ENABLES BUFFER INTERRUPT IDENTIFICATION GATE IDENO IN RESPONSE TO AN ACKID COMMAND.

D.CMDO DECODES THE INFORMATION ON INF130-INF150 WHEN ACO IS ON TO ACTIVATE 1 OUT OF 8 DECODER OUTPUTS. OUTPUT 7 PREVIOUSLY MENTIONED IS USED IN CONNECTION WITH A MPP COMMAND.

OUTPUT 5 CLOCKS THE BIT PATTERN ON LEADS INFD90-INF120 INTO THE 4-BIT STATE REGISTER STATE1. THE STATE REGISTER CONTROLS THE STATES OF LEADS STUFFD, UNLBADO, LBADO, INT.WFF1 WHICH INDICATE THE TYPE OF OPERATION TO BE PERFORMED ON THE OFF-LINE BUFFER. OUTPUT 4 ASSERTS SWB1, TOGGLING THE ACT F/F ON JK11 AND EFFECTING A BUFFER SWITCH. OUTPUT 3 CLOCKS THE CL.BR0 F/F WHICH ASSERTS C.BR1, CLEARING THE BR FLAG ON JK11. CL.BR0 F/F MAY BE HELD SET BY AN ACTIVE LEVEL ON BLK.CBR1. OUTPUT 2 ASSERTS EITHER CLC1I OR CLCOI TO CLEAR THE BUFFER COUNTER INDICATED BY THE STATE OF 1ACTD. OUTPUT 1 ASSERTS DV.FILL1 RESULTING IN A CC-INITIATED ON-LINE BUFFER FILL OPERATION. OUTPUT 0 PERFORMS BUFFER INITIALIZATION (AS DOES LEAD INITD) BY RESETTING STATE1, CLEARING BOTH ON-LINE AND OFF-LINE BUFFER COUNTERS VIA CLCO1 AND CLC11, AND ASSERTING MRSTA1. OUTPUT 6 OF D.CMDO IS NOT USED.

CSTC1 CLEARS THE STUFF SEQUENCE COUNTER IN JK11 WHILE THE LBAD BIT IN THE STATE REGISTER IS BEING SET. TG.SEQ1 STARTS OFF-LINE SEQUENCING ON JK11 IF EITHER TLL STATE REGISTER STUFF OR UNLBAD BIT IS BEING SET OR IF RDO OR SDO IS ACTIVE.

D.CMDO TRUTH TABLE
(ASSUME E.RCD ACTIVE)

| INF150 | INF140 | INF130 | ASSERTED OUTPUT |
|---|---|---|---|
| 0 | 0 | 0 | 7 |
| 0 | 0 | 1 | 3 |
| 0 | 1 | 0 | 5 |
| 0 | 1 | 1 | 1 |
| 1 | 0 | 0 | 6 |
| 1 | 0 | 1 | 2 |
| 1 | 1 | 0 | 4 |
| 1 | 1 | 1 | 0 |

2D1

JK10 CIRCUIT PACK (2) CPS-JK10 SHEET 4

BELL TELEPHONE LABORATORIES INCORPORATED 6S